FIRST SEMI-ANNUAL STATUS REPORT

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Research Grant No. NsG-681

Period 1 July - 31 December 1964

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ON

COMET INVESTIGATIONS

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The work done under Contract No. NsG-681 between July and December 1964 covers the following items:

Double Stars. Pending the completion of the 61-inch reflector of the Catalina Station and the 16-inch at the Tumamoc Station, Dr. Van Biesbroeck made micrometric measures of double stars at the 84-inch reflector of the Kitt Peak National Observatory. He used this telescope three nights a month and measured so far 212 stars. These are mostly close pairs in critical parts of their orbit. The discussion of the measures obtained during the last five years was started toward publication in 1965.

Comets. Dr. Van Biesbroeck made a discussion of all the observations on comet Wirtanen (1947 VI), leading to a definitive orbit which turned out to be slightly hyperbolical. However, backward computation of the planetary perturbations over a period of 20 years revealed that the original orbit was actually an ellipse of long period, showing that the comet is indeed a permanent member of the solar system. The results will appear in the Communications of the Lunar and Planetary Laboratory of the University of Arizona.

Dr. Van Biesbroeck has further started work on the definitive orbit of comet Nukos (1959 IX) which was followed during 9 months from 3 December 1959 to 26 September 1960.

Uranus Satellites. Dr. Van Biesbroeck completed measurements of the 5 satellites of Uranus on plates obtained with the 82-inch McDonald reflector during the years 1948-1964. These will be used in a redetermination of the satellite orbits when plates at the 1965 opposition become available, at which time the earth through the plane of orbit, giving a sharp determination of the nodes and the inclinations.